SECRET

OUT-67514

R 231426Z APR 69
FM NPIC WASHDC
TO DIA
BT

1969 APR 23 14 48Z

S E C R E T CITE NPIC 6152
FOR DIA XX-2
SUBJ: EVALUATION OF COLOR PORTIONS OF GIANT SCALE MISSIONS Ø74, Ø86, AND Ø87
REF: SAC 132348Z FEB 69

1. THE REFERENCED MESSAGE WAS PASSED TO NPIC FOR ACTION AND THE REQUIREMENT WAS MODIFIED TO PROVIDE THE FOLLOWING INFORMATION:

A. DETERMINE THE BEST AND AVERAGE GROUND RESOLUTIONS OBTAINED ON THE SUBJECT MISSIONS.

B. PROVIDE A PI JUDGEMENT AS TO INFORMATION WHICH IS MORE READILY APPARENT ON THE COLOR FILM THAN IT WOULD BE ON BLACK AND WHITE FILM TAKEN WITH THE SAME CAMERA SYSTEM.

2. MISSION Ø74 FLOWN 1Ø NOV 68 WAS FLOWN USING SP-18Ø FILM. THE ALTITUDE VARIED FROM 25,ØØØ TO 81,ØØØ FEET PROVIDING SCALES OF 1:5Ø,ØØØ TO 1:162,ØØØ. THE TROC CAMERA OPERATED FOR A TOTAL OF APPROXIMATELY 5 HOURS AND 45 MINUTES THROUGH A VARIETY OF SOLAR ELEVATIONS AND CONSTANTLY CHANGING RELATIVE AZIMUTH BETWEEN THE SUN AND THE PRINCIPAL RAY. THESE CONSTANTLY CHANGING CONDITIONS AFFECT BOTH THE GOUND RESOLUTIONS AND THE INFORMATION CONTENT TO A DEGREE THAT A GROUND RESOLUTION WOULD NOT BE AN ACCURATE RESPONSE TO THE REQUEST. THE LOW ALTITUDE ACQUISTION PROVIDE GROUND RESOLUTIONS OF TEN FEET AND THE HIGH ALTITUDE ACQUISITIONS PROVIDE 2Ø FOOT GROUND RESOLUTIONS. THE RELATIVE BEARING OF THE SUN CHANGES THE COLOR BALANCE WITHIN THE FORMAT OF THE FRAMES. THIS IS DUE IN PART TO THE WIDE ACCEPTANCE ANGLE OF THE LENS (73.5 DEGREES). OTHER INFLUENCING FACTORS INCLUDE, CHANGES IN AMBIENT TEMPERATURE, WINDOW HATCHES, AGE OF FILM, PROCESSING, ETC.

3. MISSIONS Ø86 AND Ø87 WERE FLOWN USING SO-121 FILM. BOTH MISSIONS WERE OVEREXPOSED CAUSING LOSS OF DETAIL IN BOTH HIGHLIGHT AND SHADOW AREAS. THE ALTITUDE VARIED THE SAME AS IN MISSION Ø74. THE CAMERA OPERATED FOR 3 HOURS AND 24 MINUTES ON MISSION Ø86 AND 4 HOURS ON MISSION Ø87. THE SOLAR BEARING WAS CHANGING CONSTANTLY. THE RESOLUTIONS ARE 1Ø FEET AT LOW ALTITUDES AND 2Ø FEET AT HIGH ALTITUDES.

4. BLACK AND WHITE AND COLOR FILM TAKEN WITH THE SAME CAMERA SYSTEM PROVIDE THE SAME RESOLUTIONS. BOTH BLACK AND WHITE AND COLOR EMULSIONS HAVE BETTER RESOLUTION CAPABILITIES THAN THE CAMERA SYSTEM EMPLOYED. THE MATERIAL FROM THE TROC SYSTEM IS NOT USED AT NPIC FOR INTELLIGENCE EXPLOITATION. IT IS USED FOR INDEXING THE MISSION TRACK. AN EXERCISE WAS NOT CONDUCTED TO DETERMINE INFORMATION MORE READILY APPARENT ON COLOR BECAUSE SUCH AN EXERCISE WOULD REQUIRE SIMULTANEOUS BLACK AND WHITE COVERAGE WHICH IS NOT AVAILABLE.

GP-1
S E C R E T

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ADVANCE CY SANITIZED WITH TEXT

--END OF MESSAGE--

GROUP 1 Excluded from automatic downgrading and declassification

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